

## **EDUCATION**

### **ABSTRACT**

The performance of the education industry is vital to the national security and economic prosperity of the United States. The advent of the Information Age has significantly increased both the opportunities and the challenges presented to policymakers and educators. An examination of the education industry leads to five principal conclusions. First, high academic standards and effective assessments are essential to promote achievement and measure progress. Second, efforts to recruit, train, and retain high-quality teachers and administrators require special priority. Third, the United States should continue to implement policies, and increase targeted resources that promote equal access and opportunity for all U.S. citizens. Fourth, teachers cannot be successful alone. Social support with adult involvement and a safe learning environment are key to successful student development. And fifth, innovative ideas such as school choice, home-schooling, charter schools, and e-learning can spur competition, raise industry performance, and promote equity. The overall assessment of the U.S. education industry at present produces mixed results. Primary and post-secondary schools are above average compared with those of international competitors; middle schools are average; and secondary schools are below average. The performance of the transitional sector (non-collegiate adult education) is marginal (but improving) relative to other countries, and that of the workplace sector is expanding and satisfactory. Although most U.S. citizens agree that education in the U.S. needs improvement, the degree and method of change remain debatable issues.

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American Federation of Teachers, Washington, DC  
The Archdiocese of Detroit, Detroit, MI  
Boston Private Industry Council, Boston, MA  
Boston Renaissance Charter School, Boston, MA  
Chelsea Public Schools, Boston, MA  
Educational Testing Service, Washington, DC  
Focus: HOPE, Detroit, MI  
Francis Parker Charter School, Ft. Devens, MA  
General Motors University, Detroit, MI  
Harvard Graduate School of Education, Cambridge, MA  
Maryland State Department of Education, Baltimore, MD  
Minuteman School of Applied Arts and Sciences, Lexington, MA  
Montgomery County Public Schools, Rockville, MD  
Motorola University East, Mansfield, MA  
National Alliance of Business, Washington, DC  
National Governors' Association, Washington, DC  
Northern Essex Community College, Haverhill, MA  
Potomac Job Corps Center, Washington, DC  
Raytheon Corporation, Lexington, MA  
Thomas Jefferson High School, Alexandria, VA  
U.S. Department of Education, Washington, DC  
U.S. Department of Labor, Washington, DC  
U.S. House of Representatives, Committee on Education and the Workforce,  
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## **International:**

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Department for Education and Employment, London, England  
Deutsche Bank, Frankfurt, Germany  
Enfield County School, Enfield, England  
Goethe Gymnasium, Frankfurt, Germany  
Ministry of Education, Baden-Wuerttemberg, Germany  
Qualifications and Curriculum Authority, London, England  
University of Maryland University College, Heidelberg, Germany  
Morgan Stanley Dean Witter, London, England  
Teacher Training Agency, London, England  
Institute of Education, University of London, London, England

Team members also interviewed a number of distinguished experts in the field of education, including Ms. Anne C. Lewis, Dr. Gerald W. Bracey, Mr. Denis P. Doyle, and Dr. Ted R. Sizer. The seminar hosted speakers from the American Federation of Teachers, the Educational Testing Service, and the Human Development Network of the World Bank. We wish to express our sincere gratitude to these distinguished individuals and organizations for their time and candor.

## **INTRODUCTION**

The Education Industry is an extremely complex field with many levels and facets involving government, corporations, as well as public and private institutions. There is no monolithic approach to education in the U.S., let alone the world. Education is an emotionally charged topic. President George W. Bush has made education reform a cornerstone of his new administration with a program titled “No Child Left Behind.” The 2001 Hart-Rudman Commission says, “...the inadequacies of our systems of research and education pose a greater threat to the U.S. national security over the next quarter of a century than any potential conventional war that we might imagine.”<sup>1</sup> The Commission highlighted the increasing importance of math and science skills, the deficiencies of U.S. students, and the lack of quality teachers in these areas. Leaders of industry also believe that education is key. In a 1998 survey of 430 CEOs in the fastest growing product and service companies over the last five years, 69 percent reported the shortage of skilled, trained workers as a barrier to growth.<sup>2</sup> A proactive approach to educating our citizens is vital given the implications for continued U.S. world economic leadership and national security.

Historically the education industry has been a significant factor in sustaining the national security interests of the United States. However, today, there is much room for

improvement. The continual need for college and corporate remedial training indicates weaknesses in our K-12 system. Remedial work takes away needed time from more professional level college and corporate courses that are critical for today's sophisticated workplace. While many of our primary, secondary and post-secondary school systems are clearly among the best in the world, too many are substandard. For example, many high schools in the northern suburbs of Chicago are nationally renown for their excellence.<sup>3</sup> Yet, pockets of poor performing schools exist in every state. Equity and access to a quality education are ongoing problems.

Efforts to retain and train high quality teachers and administrators also require immediate priority. Thirty percent of new teachers leave teaching within three years.<sup>4</sup> Various models of education reform such as charter schools, school choice initiatives, and the recent push to articulate rigorous state standards of learning are beginning to show promise, but challenges remain. Moreover, questions on who will influence education and sources of funding for federal, state, and local levels add to the ongoing debate over the direction of future policy initiatives. The exponential growth of technology and the increase of diversity present both opportunities and challenges in today's education industry. This paper predominately focuses on bedrock issues in the K-12 arena and provides recommendations for the way ahead.

## **THE EDUCATION INDUSTRY DEFINED**

Defining the education industry is a challenge in itself. The distinctions that formerly existed between many of the industry's sectors are increasingly difficult to delineate as collaborations among schools, training programs, and businesses grow and flourish. Technological advances and market forces continue to stimulate change and innovation, with distance learning and e-learning creating many new programs and affecting traditional programs. The education industry encompasses an enormous number of diverse institutions, public and private, traditional and non-collegiate. These institutions can be compartmentalized into three sectors—schools, transitional organizations, and workplace.

The schools sector is the image that comes to mind when most people think of education. It includes many childcare facilities, preschools, elementary and secondary schools, community and junior colleges, colleges, universities, and professional schools, postdoctoral study, and research. Technical and vocational schools also fall into this category if their primary objective is the attainment of an academic degree.

The school-to-work transitional institutions consist of a diverse group of non-collegiate public and private (nonprofit and commercial) organizations and community college non-degree programs that provide a wide range of adult education and training to individuals. For example, this sector includes computer training classes, professional and management development training, technical and trade schools, and apprenticeship training to name a few of the many programs. In some cases, such as the Minuteman School of Applied Arts and Sciences in Lexington, Massachusetts, local businesses collaborate with the high school to develop an outstanding transitional curriculum.

The workplace sector consists of education and job training provided by employers. The training generally focuses on job-specific technical skills, management and supervisory skills, computer literacy and applications, product knowledge, interpersonal and team skills, customer service, sales, administrative skills, business practices, occupational safety, quality control, and basic skills (remedial mathematics, language, and reading). Corporate universities, employer-provided funding for tuition reimbursement, payments to outside commercial vendors, and military training are included in this sector.

## CURRENT CONDITION

### **School Sector**

The United States spent nearly \$390 billion on K-12 education in the year 2000, 4 % of its GDP. If we add in higher learning institutions, total formal education spending goes up to \$650 billion or 7% of the GDP.<sup>5</sup> Currently, there are 53 million students enrolled in K-12 and 15 million in higher learning institutions.<sup>6</sup> Many would contend that our education system is effectively supporting the nation. High school graduation rates have doubled over the last 40 years and the percentage of eligible students attending college is higher than at any time in history.<sup>7</sup> Our universities are some of the world's best and attract students from around the world. About 37 percent of the doctorates in natural science, 50 percent of doctorates in mathematics and computer science, and 53 percent of doctorates in engineering are awarded to non-US citizens.<sup>8</sup> Unemployment is only 4.2% and our economy is strong.<sup>9</sup> So, why the negativism in public debate and the media concerning the U.S. education industry?

Secretary of Education Rod Paige notes that even though statistics tell us we are the *most* educated nation in the world, we must also be the *best* educated. The performance of our school sectors would best be described as mixed overall. Some students get a high quality education while others receive education that is woefully inadequate--so bad that they cannot even read at the basic level upon graduation from high school. Approximately 18 percent of U.S. companies now offer remedial training in basic math and reading skills, learning that should have taken place in school.<sup>10</sup>

Recent studies analyzing and comparing students worldwide rated U.S. elementary school performance as above average, middle school as average, and high school as below average.<sup>11</sup> A drop-off in student performance appears to occur as Americans progress through the public education system as indicated by an analysis of results from both the 1995 Third International Math and Science Study (TIMSS) and the TIMSS-Repeat in 1999. U.S. student performance relative to the rest of the world drops between 4<sup>th</sup> and 8<sup>th</sup> grades, continuing through 12<sup>th</sup> grade.<sup>12</sup> For example in the 1995 TIMSS, 4<sup>th</sup> graders were above the international average in math and ranked second overall in science. However, 8th graders dropped below international averages, and 12<sup>th</sup> graders fell even further. In advanced mathematics and physics, U.S. 12<sup>th</sup> graders ranked last.<sup>13</sup>

Three consistent themes contribute to this drop-off in student performance. First, in elementary schools, young children are still very dependent on parents, whereas middle and high school students gain more independence and are greatly influenced by peer pressure, especially if there is not a strong parental figure in the home. Secondly, through the elementary school grades, all local school districts across the country are teaching roughly the same general topics, such as reading writing and arithmetic, basic standards that all states are teaching at all schools throughout the U.S. Conversely, through middle and high school, the curriculum becomes more splintered as different state and local education boards vary on the types of courses they offer.<sup>14</sup> This significant lack of consistency from state to state illustrates the disparities between states and the need for common standards. Third, as math and science courses increase in subject matter complexity in later grades, teachers often do not have the corresponding specialized subject matter training and expertise. Finally, another reason for the drop-off may be that the public school system is, in essence, a monopoly. With little competition, public school administrators may have become somewhat complacent in their methods and resistant to change. In business if a company does not provide the services it claims, it finds itself out of business. The same principle should apply in the education business. Recent initiatives like vouchers, distance learning, home schooling and private companies such as the Edison Company, which is running a number of public schools, may provide impetus for failing schools to improve.

### **Transitional Sector**

This sector is characterized by a wide range of institutions, businesses, partnerships, and government programs involved in moving the individual from schools into the workplace or retraining to upgrade skills and improve job placement for dislocated workers. Two reports “A Nation at Risk” in 1983 and “American’s Choice: High Skills or Low Wages” in 1990 sounded the alarm about the newest entrants to the U.S. labor market. Both reports concluded that many graduates entering the job market had neither the academic background nor entry-level occupational skills to succeed in the changing economy.<sup>15</sup> Training and employing our increasingly diverse and immigrant population is also a challenge for this sector.

Although efforts have only been marginal in solving this problem, one example of success was a private organization – Focus: HOPE – in Detroit, Michigan. This program centers on building partnerships with business, universities, and the Department of Defense to overcome barriers and bring underserved populations into the economic mainstream.

Many organizations have shared the responsibility for transitional education using limited resources with varying degrees of success. Much is dependent on the commercial or private sector. However, with the passage of the federal Workforce Investment Act (WIA) in 1997, the Department of Labor started several new initiatives to improve transition into the workplace. They include “One Stop” centers nation-wide which help in building resumes, skills assessments, career counseling, and job search and placement. They continue to support programs such as the Job Corps for training and employment of

at-risk youth, and welfare-to-work initiatives. The School to Work Act of 1994 is another federal program that provided “seed” money and a framework for state and local communities to help students team with business for technical skills training and job experience. The law “sunsets” this year and the jury is still out on its success or possible renewal.

Although more emphasis is being focused on this key area, there is still much to do in efficiently coordinating the varied programs, providing adequate resources, and ensuring opportunities are provided for all to participate and advance in the new workplace. The nation should look at educational systems in England and Germany as examples of more coordinated efforts. At the national level, both countries have one organization responsible for leading and monitoring transitional programs that lead to formal certifications in specific occupations.

### **Workplace Sector**

This year, U.S. businesses will spend over \$54 billion to provide formal training and development courses for employees.<sup>16</sup> Corporations and businesses perceive training as increasing in importance. In total, over 45 percent of organizations studied in *Training Magazine*'s “Industry Report 2000,” increased their spending on training between 1998-1999.<sup>17</sup> According to the American Society of Training and Development (ASTD), the average firm utilizing their benchmarking service trained 76% of their employees in 1998, up from 69% in 1997. Leading edge firms were much higher at 97%.<sup>18</sup> That result remained consistent regardless of the size of the company.<sup>19</sup>

Therefore, industry is training its people in a variety of skills from technical to managerial. Although IT skills dominate, there are many facets to corporate training with these areas listed as the most common:<sup>20</sup>

| <b>Types of Training</b>      | <b>Organizations Providing</b> |
|-------------------------------|--------------------------------|
| Computer Applications         | <b>99%</b>                     |
| Management Skills/Development | <b>96%</b>                     |
| Supervisory Skills            | <b>96%</b>                     |
| Technical Skills/Knowledge    | <b>94%</b>                     |
| Communication Skills          | <b>94%</b>                     |
| Computer Systems/Programming  | <b>88%</b>                     |
| Customer Service              | <b>88%</b>                     |
| Executive Development         | <b>87%</b>                     |
| Personal Growth               | <b>84%</b>                     |
| Sales                         | <b>56%</b>                     |

Business is recognizing the benefits education and training bring in recruiting, retention, productivity and employee morale. Motorola University (MU) is an excellent example. It is among the best known and widely benchmarked corporate universities in the world. MU is a \$100 million global service business that is responsible not only for education, training, and development, but also for the gathering and distribution of vital

company information.<sup>21</sup> Motorola considers education to be an employee right as well as a responsibility.<sup>22</sup>

Motorola is not alone. Many successful companies espouse a life-long education and training philosophy and have established corporate universities. Corporate universities are a growing trend among large organizations. More than 1600 corporate universities existed in the U.S. in the year 2000, compared to 400 in 1988, with average budgets ranging between \$20 million and \$600 million.<sup>23</sup> Nationwide, the ASTD reported the average benchmark organization employee received 29 hours of training per year.<sup>24</sup>

Companies also are recognizing the need for improvement in the quality of the students graduating from U.S. high schools and colleges and are becoming increasingly involved in state education. No longer content to simply donate money and technology, they are leading lectures, advising on curriculum, training teachers, and mentoring thousands of youngsters in an effort to improve the educational performance of future employees. Companies have joined together in an attempt to systematically enhance education through organizations such as the National Alliance of Business and the Business Roundtable.

Overall, workplace education is receiving abundant attention from business leaders and corporate CEOs. It is producing a return on investment in the form of increased productivity, higher recruitment, retention and morale. Workplace education is expanding and is meeting the needs of the U.S. business sector.

## CHALLENGES/RECOMMENDATIONS

Throughout our history, emphasis on education as a national priority has varied. Therefore, the U.S. has not made consistent commitments to enable us to achieve national goals. Specifically, the U.S. must address the following issues that impact the quality of education: *teachers' salaries* and training, *equity* in education for all children, *standardization* of curriculum, *more school choice* for parents and students, and *increased social support*.

### **Teachers**

The first daunting challenge facing the education industry is retaining current teachers and recruiting new teachers. Teacher shortages exist in every state, even more so in economically disadvantaged schools. Math and science teachers are particularly scarce across the nation.<sup>25</sup> The U.S. must make a national commitment to provide adequate salaries and incentives to retain current and future teachers. Teacher effectiveness must also be our focus. The nation should create national-level teacher certifications, adequately resource continuing professional education, and provide quality classroom and curriculum support.

## **Equity**

A second and equally challenging issue involves equity. Our policies and programs must ensure access to quality education for all children, regardless of any cultural and/or socio-economic barriers. Approximately 17 million, or 34 percent, of the nation's children attend public schools in poor, urban or rural areas.<sup>26</sup> Our recommendations include providing all schools with access to 21<sup>st</sup> century technology, increasing federal education spending, and targeting more Title I money toward the poorest communities. We specifically recommend establishing more safeguards to ensure that states and districts do not divert the money from programs intended for low-income students. The benefits of closing the educational gap between the "haves" and "have-not's" will far outweigh any monetary costs.

## **Standards**

Nation-wide learning standards could also help reduce inequity by providing a framework for school curriculums that ensures all children get similar foundational education experiences. Currently, even within a single American school district, curriculum can vary significantly.<sup>27</sup> Contrast this with England, which established a detailed national curriculum using input from local educators. Additionally, Germany's sixteen different state curriculums all share common elements as agreed to by the states' Ministers of Education.

In the U.S., national learning standards could simply provide the basic objectives each student should demonstrate before advancing to the next grade. National standards also become more important in light of our increasingly mobile society. According to the National Alliance of Business, "The nation's population centers are moving away from the industrialized sections of the Northeast and upper Midwest to the South and West, and projections indicate that this pattern will continue for some time to come."<sup>28</sup> As more people move, it will be prudent to have consistency across state education systems.

Attempts to establish nation-wide standards in the U.S. were defeated in the past mainly because local and state governments were unwilling to relinquish control over education. The challenge will be getting local and state governments to work together in establishing a national framework of education standards.<sup>29</sup> State educators will have to compare the current non-standardized methods, then develop and agree on a common set of national standards. The *burden of accomplishing this must fall to state educators*, and not on a federal mandated standard.

## **Choice**

A third challenge generating a great deal of controversy and attention focuses on giving parents and students alternatives in selecting the best method for achieving their education. The major advantage of these varied programs is that they enable students to best explore their potential by customizing programs to optimize their strengths. We recommend more flexibility in education and support programs such as home schooling,

charter schools, and vouchers. Choice can also spur competition and improvements in a public school system that is virtually a monopoly. The common element in all these alternatives is participation from parents and students in selecting the best method for the delivery of educational services.

### **Social Support**

Parental involvement in the education process is critical for improving student performance. Educating parents on the value of proper pre-natal care, early cognitive learning, and parent-teacher interaction is essential to establishing a child's early learning foundations and subsequent opportunities for educational success.<sup>30</sup> In addition, students from two-parent families perform better in school than those with one parent.<sup>31</sup> With the growing number of single parent homes in America, increased societal involvement is critical to remedy the shortage of adult attention many children receive today.

Improved social support could also improve school safety. There have been 215 deaths from school shootings in the U.S. since 1992.<sup>32</sup> The challenge is how to deal with a problem that is more of a social issue than an educational one, yet has profound implications for our educational environments. The Departments of Education and Health and Human Services should assess the current performance, compatibility, and synergy of their existing programs and place emphasis on those programs that work.

The many challenges facing this nation in preparing its youth to be productive members to the larger society are immense. The underlying foundation to long-term success in this critical undertaking must be adequate resources, a strong national focus, coupled with flexibility and innovation in the provision of educational services that are tied together by a sound framework of national standards. The current budget surplus offers a unique opportunity to invest in the future through the education of this country's most valuable asset – its human resource capital.

### **GOVERNMENT GOALS AND ROLES**

Who is in control of education? Local, state, or national government? The answer is all three in varying measure. The federal government provides 7% of the funds provided for public education. The majority of the funding comes from an even split between state and local governments. Data from the U.S. Census Bureau shows the following breakdown of elementary-secondary school revenue for 1999-2000:<sup>33</sup>

| U.S. Total    | Federal Sources | State Sources   | Local         |
|---------------|-----------------|-----------------|---------------|
| \$390B (100%) | \$27.3B (7%)    | \$187.2B (48 %) | \$175.5 (45%) |

The availability of funding for the different levels of government ties to different revenue sources. Federal funds come via the general appropriation cycle. States generate school funds primarily by sales taxes and/or income taxes. Education revenue for localities comes largely from real property taxes.

## **Local and state roles and goals**

States and local municipalities fund most of the education, hire teachers, set local standards, and build and maintain facilities. The reliance on localities – with vastly differing demographics, wealth and values – is also the source for inequities in both the financing and delivery of quality education across America. States also take federal education funds to augment their local programs but frequently must use these funds under a plethora of federal restrictions and guidelines. As such, local communities insist on strong local control largely in response to perceived federal intervention. The goal of state and local governments is to customize their education programs so they meet the needs of individuals and the community. So, what role does the national government play in education?

### **National Government Roles and Goals**

The national government should play three primary roles in education. First, it must promote *educational equity* in America so that no child is left behind. Every child in America should have access to a comparable quality level of education. Second, the national government must *focus the nation* and discretionary federal budget funding on the most pressing educational problems. Third, it must facilitate a cross flow of information on education excellence, acting as a *repository of the nation's best educational practices*.

#### **Making Educational Equity a Reality**

The Department of Education has shifted its focus over the years to incorporate guidance from each new administration. However, a central tenet of emphasis has always been equity in education. Educational equity will help all Americans gain opportunities for a productive and prosperous life. At the same time, educational equity will create a broader, higher quality workforce for the 21<sup>st</sup> century that will help ensure America maintains its economic strength and national security. Educational equity could also create a common bond or cultural heritage in America, forged through a quality education for all our children. Common quality should decrease the divide between the educational, digital, and economic “haves” and “have nots.”

#### **Focusing the Nation**

The second important role of the federal government in education is to keep the nation focused on key pillars or themes that can raise academic excellence. Within discretionary budget funding, it puts money toward improving defined problem areas. For example, in 1988 Congress created The National Assessment Governing Board and authorized it to set performance standards for reporting the National Assessment of Educational Progress (NAEP) – commonly known as the “Nation’s Report Card.”<sup>34</sup> The NAEP, operated by the Department of Education, measures and reports student achievement. NAEP brought student assessments to the forefront of national and state education thinking.

Another area where the government focused attention is the digital divide. Former President Clinton announced the award of a \$24 million grant to three school district partnerships under the Technology Innovative Grant Program Challenge. The former president said, “We must close the gap—the digital divide—between those individuals and communities that have access to Information Age tools and those that don’t.”<sup>35</sup> He also challenged American corporations and non-profit organizations to “take concrete steps to meet two critical goals: provide 21<sup>st</sup> century learning tools for every child in every school and create digital opportunity for every American family and community.”<sup>36</sup> This superb challenge highlights a key point: when the government focuses the nation on specific education problems, it should always seek to transition the responsibility for program oversight and funding to state and local governments or businesses. Local governments, communities, and businesses best understand the unique educational challenges in a state or municipality.

### **Repository of Information and Best Practices**

The national government must also facilitate a better cross flow of information. It must build a repository of information that identifies communities, and more importantly schools, in need of financial help beyond what the national, state and local governments can supply. As highlighted by former President Clinton above, current and future administrations must help American businesses realize their capacity and opportunity to be philanthropists that sponsor education reforms/initiatives.

The U.S. Department of Education should also increasingly serve as a repository for national best practices and innovation in education. Today, the Department’s Eisenhower National Clearinghouse (ENC) has a vast, multiple link website that is a main source of information, best practices, curricula resources, and networks to help states and districts improve in all major areas of education. Located at Ohio State University, the ENC is funded through a contract from the Department of Education’s office of Educational Research and Improvements.

In summary, the federal government should seek to reduce inequity in education, it should focus the states on closing economic and technical gaps, and it should promote best practices and industry partnerships. Increased federal funding can help achieve these goals, but results must be measured so the nation can assess the effectiveness of current and additional funding.<sup>37</sup>

## **OUTLOOK**

What does the future hold for the educational system of tomorrow? Current projections show increases in the number of students over the next decade with new skills requirements and a large influx of immigrants. The National Center for Education Statistics forecasts record level enrollments. Public elementary schools will remain at approximately 38 million through 2010, reflecting a 25% increase from the 1980s. Secondary school enrollment continues to grow, exceeding past records and peaking at approximately 16 million in 2006, a 20% increase over the past decade. Private school

enrollment rose by 7% in the past decade to approximately 6 million.<sup>38</sup> New experiments in school choice, tuition programs for failing schools, and increased dissatisfaction with public education could increase that number. Beyond 2010, we can expect large increases in primary school enrollment since projected births rise from 3.9 million in 1991 to 4.28 million in 2010.<sup>39</sup>

Immigration will also impact future projections as numbers continue to grow. Hispanic school age children will increase approximately 60% in the next 20-25 years with nearly 1 in 4 school age students in this category. The number of non-Hispanic white children will drop to less than 50% in the next few decades, as the members of the “minority” groups become the majority.<sup>40</sup>

These high student populations increase the burdens on an already strained educational system, which currently includes a severe teacher shortage. Today, public school teachers number about 2.9 million.<sup>41</sup> Projections for the next ten years show the nation will need to hire 2.5 million more teachers.<sup>42</sup> Without increases in pay and incentives to stem current shortages, the system will continue to depend on alternative approaches to fill the projected gaps. Alternative teacher certification, hiring professionals from different fields, soliciting help internationally, hiring retirees, and encouraging our growing older population to contribute time and talent are all options for solving the critical shortage of tomorrow.

Although there is now more attention on the need for public investment in education reform and better awareness of critical shortages, allocated resources are not expected to rise sufficiently to conquer educational challenges. Instead, restructuring and new initiatives, combined with a better use of technology, are forming the foundation for educational reform. Charter schools, private educational management firms, and home schooling are increasing dramatically, focusing on core education goals and serving as catalysts for streamlining and improving our public institutions. Successful secondary schools are creating “hubs” of specialized knowledge within their walls such as advanced math and science, international studies, computer science, or service industry options. These better prepare students for the future global, interconnected, and high tech workforce.

Business and universities will become more involved in the success of our students and educational institutions. Driven by the growing need for a well-educated pool of employees and to avoid retraining in basic skills, businesses and universities will increase partnerships and teaming with secondary institutions in developing curricula and requirements for transition to the workforce, assisting with staff needs, and preparing students for academic and vocational programs.<sup>43</sup> Corporate universities can then focus on professional advanced learning.

The school of the future will vary in many ways from the traditional image. Technology is bringing better tools to the teachers and students via skill-tailored databases and instructional material. In addition, technological access offers current and standardized curriculum from the best resources, and the best practices in shared

knowledge and methods of instruction. Teachers may become facilitators by bringing easily accessible digitized subject matter experts into the classroom or by leading explorations of virtual environments. Students can progress at their individual pace, reinforced by continued availability of electronic instructional aids. In addition, students can network with other students anywhere on collaborative projects. They will have a new, global perspective, as daily contact with the international community becomes the norm.

The future is now. We must harness technology, educational reform initiatives, and a new commitment to opportunity and achievement for our future society to meet the challenges of the new millennium.

## CONCLUSION

The education industry is generally supporting the United States national security interests. Careful analysis of this industry reveals many positive attributes as well as numerous challenges, but few absolutes. Honorable men and women can honestly disagree over issues currently in the news such as assessments, vouchers, and school choice. To be certain, there is some merit to opinions on either side of these concerns. Education is an emotionally charged topic. It is also a very political one. The most recent presidents all wanted to be known as the "Education President." Despite this executive level attention, most people agree that we can and must do more to improve certain areas of our educational system.

Of the many challenges currently facing this industry, two are most prominent. First is teacher availability and effectiveness. Our ability to recruit, develop, and retain quality educators is absolutely critical to the future success of this industry. The second challenge is to ensure all children in this country have equal access to a quality education. Our nation's interests are best served when we are able to close the gap between the "haves" and the "have nots". Education holds the key to making this dream a reality. We believe the recommendations put forward in this paper offer potential answers to these challenges.

Our nation stands at the perfect time and place to explore our national education strategy. Our economy, notwithstanding the recent downturn, is still the envy of the world and we currently have a significant federal budget surplus. We are at peace and consequently have little to distract us from focusing national attention on this critical concern. Moreover, we have just entered the 21st century and are still in the midst of a technological revolution with the rate of change occurring almost exponentially. So, we must ask ourselves, *if not now, when?*

President Bush has seized the moment by putting his education initiative at the front and center of his Administration. This set the stage for a healthy national dialogue not only on education reform, but also on the appropriate role of federal government in education. Clearly with a nation as large and diverse as ours, state and local governance will, and should, remain predominant. However, the federal government has a key leadership role to play as well. It begins with a vision and setting of goals. It involves

improving communication and coordination among the many educational agencies and constituencies. And finally, it provides essential funding of programs necessary to ensure high achievement, access and opportunity for all students. Now is the time for education stakeholders to join forces and promote the common good of the American education industry. After all, *if not us, who?*

## ESSAYS ON MAJOR ISSUES

### ESSAY #1: IMPROVING EQUITY IN EDUCATION

#### **Problem**

President Bush's 2002 budget proposal adequately states the issue facing America today. "...for too long our education system has tolerated an unacceptable achievement gap between disadvantaged and minority students and their more advantaged peers."<sup>44</sup> A hallmark of President Bush's plan is to "learn from states and school districts across the country that have made remarkable progress in turning around failing schools, raising student achievements, and closing the achievement gap."<sup>45</sup>

#### **Solution 1: Better Funding**

Disparities exist in per-pupil spending between states and local school districts. In the 1999-2000 school year, the U.S. spent on average \$5925 per pupil. At the high end, New Jersey, spent \$9744 per student and at the low end, Utah spent \$3783. Within virtually every state, spending varies widely between different districts. Legislatures in most states have devised funding plans that guarantee all schools minimum funding on a per-pupil basis, thus providing each school with revenue for a basic level of student education. However, these "foundation" or "equalizing formula" plans have not eliminated the gross disparities in funding among schools. School districts are free to add their property tax generated revenues to the foundation amounts. Therefore, we are left with a system that promotes inequity. This is where the national government steps in. The main tool to promote educational equity is federal government Title 1 funding, aimed largely at improving funding in poorer schools.

The latest Bush administration budget proposal increases Title 1 funding to \$9.1 billion (a \$459 million increase). Congressional Democrats are asking the president to significantly increase Title 1 funding to \$15 billion. They claim only one third of Title 1 eligible recipients actually receive Title 1 funding.<sup>46</sup> If future administrations and Congresses are serious about improving education, then the education budget should increase enough to ensure that national progress on equity *occurs sooner rather than later* so no child is left behind.

## **Solution 2: Standardization**

The second part to solving the equity problem lies in focusing on what is taught and how well it is taught in schools. States and local governments have autonomy to develop curricula, standards, and assessments as they see fit to meet the educational needs of their communities. However, standards and testing procedures adopted by any one state may have little similarity to those developed by other states. The nation has attempted to evaluate national and state education progress with the National Assessment of Educational Progress (NAEP) – commonly known as the “Nation’s Report Card.”<sup>47</sup>

The NAEP measures progress in math, reading, writing, and science at the state and national level and looks for trends/change over time. It is the nation’s only ongoing survey of what students know and can do in various academic subject areas. NAEP is not tied to any formal national or state standards, and state participation is voluntary however, participation is increasing.<sup>48</sup> But, NAEP testing is costly both in terms of time and money. As a result, many schools are looking for alternative assessment tools.

The nation should take the NAEP concept several steps further. It should develop some national standardization in curriculum, student testing, teacher qualifications, and teacher performance. National standards and evaluations would “raise the bar” for low performing states/districts/schools in these specific areas and would provide a common educational assessment across America. If we evaluate students and teachers only with state derived tests, we will be comparing apples to oranges. It would be difficult to truly assess which states are falling behind. With national standards, America can accurately identify high performing states and their schools. *High performers could then mentor and share best practices and methods with low performers.*

National standards could also work to alleviate some of the current diversity in education from state to state. Given the increasingly mobile/transient nature of our society, such diversity could become our “Achilles heel” since many students could receive education products that vary greatly from state to state. For example, algebra might be taught in the fourth grade in one state but not until the sixth grade in another. Such diversity often leads to a disjointed education that could leave some of a student’s potential untapped or could delay a student’s development.

Conventional wisdom says states will fight any national standards initiative. There are two ways to overcome this resistance. *First*, the Department of Education must conduct an information campaign to emphasize that national standards are not an overt or covert attempt to control states.<sup>49</sup> But rather, national standards will help the nation develop high caliber curriculum, teaching professionals, and students in every state. *Second*, additional federal funding could be provided to support development and implementation of these standards. Historically, in many other federal programs, money talks!<sup>50</sup>

The Department of Education *should not* derive or mandate these standards. The Department should facilitate a meeting of education experts from all fifty states. With prior input from all stakeholders in state educational processes, these state experts would

develop a set of “Fifty State Education Standards.” Germany has successfully used this model. Its sixteen separate states convene in a forum called the “Standing Conference of Ministers of Education.” This conference coordinates commonality among state education curriculums in Germany’s primary and secondary schools. Doctor Ulrich Bachteler of the Baden-Wuerttemberg Ministry of Education estimates at least sixty percent of school work in that state is based on the nationally agreed to framework of curriculum standards.<sup>51</sup>

The initial development of these standards, and periodic reviews, should also include inputs from business and the Department of Defense. Their input will ensure K-12 education also prepares American children to meet national economic and national security needs. The “Fifty States Education Standards” *should not be all encompassing*. Individual states should still develop augmenting, state specific standards that address unique state/local requirements. State/local unique education standards will ensure the nation still harnesses the beauty of American national diversity. For example, the states might notionally agree to a framework that standardizes core subject curriculum while leaving states and individual school districts with autonomy to tailor other curriculum to meet local needs.

## **Conclusion**

Without a significant increase in federal funding, the federal government will continue to exercise little direct control over an educational process that is clearly in the national security interest. The nation can decrease educational inequity through increased Title 1 funding. It can also initiate discussion and consensus among the states on establishing national standards as a key step toward achieving educational equity in America. Convincing the fifty states to derive, then apply and evaluate to these standards will be a difficult and arduous process. The main point is to start the dialogue now while education is at the forefront of national interest.

## **ESSAY #2: EDUCATIONAL CHOICE: VOUCHERS, CHARTERS, HOME SCHOOLS**

There are many who feel we are not getting an adequate return on investment in our public school system, and our future workforce is at risk. Alternative educational choices have spurred interest in new solutions and innovation. The major reason for alternative education is to give every student the opportunity to explore his/her potential and become a contributing, productive member of society.

The public school system does offer some alternatives. One example is the Minuteman School of Applied Arts and Sciences in Boston, Massachusetts. This *unique public school* offers a diverse curriculum that covers the spectrum between academics, technical training, and hi-tech college preparatory courses. This school offers students opportunities to learn and practice a vocation in the school environment, teaming with businesses for support and transition employment.

Although some unique and innovative public schools exist, they do not meet the increasing demand for alternative solutions. Both vouchers and charter schools offer new alternatives within the educational structure. Home schooling offers opportunities outside traditional institutions. Vouchers are payment for students to use toward tuition in private schools or out-of-district public schools – usually granted to students of failing institutions. Charter schools are public schools in disguise – they receive public funds but are free from traditional school regulations to pursue innovation and often serve a specific need. They are accountable for student performance, and subject to closure if requirements are not met. What makes these initiatives so important in alternative education is competition to attract students to the best choice, thus forcing all to improve in order to survive.

### **Vouchers**

The idea of scholarships or subsidized tuition originated from private foundations. CEO America and the Children's Scholarship Fund offered 40,000 partial scholarships and were inundated with 1.25 million applicants.<sup>52</sup> Today, approximately 60,000 private "voucher" scholarships exist compared to only 34,000 children in public voucher programs.<sup>53</sup> The use of public funds to subsidize private education is very controversial and vouchers are hotly debated.

**Advocates** offer the following: Providing competition and an alternative to failing public schools will encourage improvement. In general, private school students are more academically challenged, experience less disruption in the classroom, and receive more discipline and respect for values. Parents who are more satisfied with the environment become more involved. Private schools offer better teacher/student ratios, better facilities, and normally higher achievement. Additionally, cost for private schools are generally less than public cost per child because private subsidies, donors or parents cover many costs such as facility maintenance and transportation. The average public school per pupil tuition in 1996 was \$6500 compared to private tuition at \$3100.<sup>54</sup>

**Opponents** claim vouchers siphon money from failing public schools desperately in need of resources. They violate the Constitution by using government funds for religious purposes. There is no real accountability of public funds. Standards and testing may not be required. There are also concerns that private schools will not be able to accommodate the demand or they will restrict student population, prohibiting equal access.

**Current Status** – Since 1990, three state legislatures, Wisconsin, Ohio, and Florida have enacted voucher programs.<sup>55</sup> In all three, the legislation is being challenged in upper appeals courts while programs are ongoing. President Bush's new education initiative "No Child Left Behind" gave this movement new attention. However, the controversy has led to little political support for public vouchers. Private voucher programs continue to grow responding to the great demand for better alternatives to failing public schools and equity in education. The benefits are yet unproven, and the

National Research Council has proposed a ten year experiment to determine impact.<sup>56</sup> Let the experimentation begin! The true benefits and successes need to be closely watched with the new demands and skills required of our future workforce.

### **Charter Schools**

This initiative, though more widely in use than vouchers, still poses competition and an alternative to traditional public schools. Their proposed goals are to increase opportunities for learning and equal access to quality education – encouraging innovation and reaching underserved populations. Thirty-six states and D.C. have charter laws, and charter schools have grown to over 1800 schools and 350,000 students.<sup>57</sup> One example of an innovative charter school is the Renaissance School in downtown Boston. Teamed with a private management firm, Edison Schools, this school occupies eight stories of a former office building. Local business support was crucial to their start-up and continued survival. These programs appear to be serving the needs of future education. However, there are still controversial issues.

**Advocates** claim charter schools promote innovation and specialization, introducing change and improved achievement. They seek an educational vision or serve a special student population. They encourage alternative governance systems, decentralized decision-making, more teacher participation, and less bureaucratic intervention. They are relieved from most traditional regulation. Smaller class size with more individual instruction is encouraged as well as an improved learning environment focusing on discipline and high performance.

**Opponents** again argue that alternative schools siphon limited funds from public schools and may destabilize our school system. Teacher unions are concerned that certification and requirements may be waived, and different salary and incentives offered.

### **Home Schooling**

This alternative has become increasingly popular and has grown from approximately 200,000 students in the 1980s to estimates as high as 2 million, or 3-4% of the entire student population.<sup>58</sup> This phenomenal growth is based primarily on dissatisfaction with the public school system. Reasons for dissatisfaction include disagreement on religious grounds, low standards, class sizes, poor school environment, lack of discipline, and lack of opportunity for accelerated studies. Again, the arguments are strong for both sides.

**Advocates** offer the advantage of flexibility and tailored programs. They want to avoid the problems identified in the current public school system and follow their own educational goals. Advocates also claim performance has been high--one in four home-schoolers are in grades above their “age” grade, and by the 8<sup>th</sup> grade, are four grade levels ahead of their peers!<sup>59</sup> In addition, home-schoolers are scoring 15-30% above average on national standardized tests and are gaining acceptance into major universities.<sup>60</sup>

**Opponents** argue home-schoolers lack standards and accurate measurements of performance, lack teacher credentials, but most importantly lack the social interactions with peers that produce productive, functioning citizens.

### **What is the best alternative choice?**

There is no doubt that people are making alternative education choices today at an increasing rate – moving out of inner city, failing districts – paying for private schools or removing their children from the system. Although it is important to put dollars and effort into failing public schools, in many urban and low-income areas it has not worked. These new initiatives may provide the impetus needed to focus attention on the problems and fix them. Alternatives are a market force that can encourage public schools to improve. Educational choice in the form of *vouchers* targets low-income families and is a useful tool in shrinking the educational gap. Education choice in the form of *charter schools* and *home schooling* provides diverse, focused programs to meet specific education goals. These alternatives should encourage innovation and renewed awareness and commitment of resources at all levels. Exploring alternatives can pave the way for a revolution in education to meet the needs of the next century.

## **ESSAY #3: IMPROVING TEACHER QUANTITY AND TEACHER EFFECTIVENESS**

### **Problem**

Schools experience a shortage of qualified teachers in almost every part of the nation. One source claims that one of every five teachers at 1,600 California schools is under qualified.<sup>61</sup> In addition, 30 percent of new teachers leave teaching within their first three years.<sup>62</sup> The National Center for Education Statistics shows we will need more teachers from now until 2010 and beyond due to projected teacher retirements, increasing enrollments, proposed initiatives to reduce class sizes, and increasing birth rates. Currently public school teachers number about 2.9 million.<sup>63</sup> However, projections for the next ten years show the nation will need to hire about 2.5 million more teachers.<sup>64</sup> To make matters worse, drawing qualified teachers to rural or underprivileged schools, where pay is lower than normal, is extremely difficult and only exacerbates the problem of educational inequity in America.

When teacher shortages exist, school districts may go short and accept larger class sizes or willingly hire teachers with little or none of the traditional qualifications. Schools generally take the second alternative. The city of Cleveland is actively recruiting math and science teachers from India.<sup>65</sup> Some districts recruit professionals from other career fields as Washington D.C. is doing with its “D.C. Teaching Fellows Program.”<sup>66</sup> The federal government is attempting to ease the void with skilled retirees from the Department of Defense’s “Troops to Teachers” program.<sup>67</sup> In all of these cases, foreign, civilian and military professionals earn state certifications via abbreviated programs.

One of the best solutions states use to overcome shortages is re-hiring retired educators at their last pay scale while still allowing them to draw retirement pay.<sup>68</sup> Nevertheless, this momentary fix, though high quality, only delays the impending train-wreck. The United States must act now and examine ways to induce more people to pursue and then sustain a teaching career. Once America recruits enough professional teachers, the nation must then improve teacher effectiveness in America's classrooms.

### **Solutions for Improving Teacher Quantity**

Better pay would draw more people into the teaching profession. The Century Foundation says the average 1998 college graduate with a bachelor's degree had a starting salary of \$48,000. However, the average teacher with a bachelor's degree made only about \$30,000. With a master's degree, the average 1998 graduate started at about \$72,000 per year. Conversely, a teacher with a master's degree only averaged \$42,000 per year.<sup>69</sup> The gap is wide and it is no wonder that college students often seek other fields of endeavor.<sup>70</sup>

One solution for paying teachers better is "merit pay." Merit pay adjusts salaries or provides compensation to reward higher levels of performance. Merit pay has existed in varying degrees in America for many years. Merit pay is linked to a district's regular single salary schedule (teachers with high ratings advance up the scale more quickly), or it is administered as a supplement to the regular salary. There are a plethora of merit pay pros and cons. School administrators are generally opposed to merit pay. The main reason is administrative evaluations will inevitably be scrutinized by teachers who did not receive merit pay, resulting in union appeals. The biggest question is how do supervisors assess merit--on teacher performance or on student performance? Although past merit systems based pay on teacher performance, current systems increasingly base it on student performance assessments. With the heated national debate on student standards of learning and high-stakes testing, one can easily see that merit pay will continue to be a widely debated issue.

Another unique option for increasing teacher pay could be corporate sponsorship. National businesses must realize their capacity and opportunity to be philanthropists that support America's teachers. This would be a "win-win" relationship for both schools and American businesses. Such a relationship could fill voids in national, state and local funding and could present a positive national and community image for a sponsoring business. One could imagine a news headline at the national level: "*General Motors, Chevrolet Division Boosts Wayne County School Teacher Salaries Through Five-Year Corporate Sponsorship Program.*"

The Century Foundation suggests another pay solution: the federal government could boost teacher salaries across the nation to a professional level status, costing between \$30-60 billion per year.<sup>71</sup> The Hart-Rudman Commission also suggests reduced interest loans and loan forgiveness in exchange for students entering the math and science teaching career fields.<sup>72</sup>

With or without nation-wide pay increases, the nation must also entice quality teachers to accept jobs in America's poor urban and rural schools. Former Vice President Gore promoted a plan to increase teacher salaries in schools serving low-income students at a cost of \$8 billion over ten years.<sup>73</sup> The Business Coalition for Excellence in Education alternatively suggests providing scholarships to "*college students who agree to become teachers and teach for a minimum of five years in high shortage areas.*"<sup>74</sup> Once the nation draws more teachers into the profession with better pay incentives, it must help them become more effective teachers and it must hold them to a higher standard of performance.

### **Solutions For Improving Teacher Effectiveness**

The nation can promote five key initiatives to increase teacher effectiveness. *First*, the Department of Education should facilitate a national study to define a set of "Fifty State" teacher standards. This study, chaired by education experts from all states, business and defense, would establish some common elements in all states for national teacher certifications, teacher salaries, teacher performance standards, performance assessments, and remedial performance corrective actions. National teacher standards will also facilitate reciprocity between state boards, allowing qualified teachers to move to where the future needs for teachers will exist.

*Second*, the fifty states must set standards for the curriculum American universities and colleges use to teach prospective teachers. This will ensure teachers are prepared to meet national performance standards and will help ensure uniformity in teaching quality across the nation. Since 1994, the Teacher Training Agency (TTA) in England has defined and monitored teaching preparation curriculum and national teacher certification testing. An independent assessment of TTA's efforts to improve teacher quality shows very positive results. New teachers have improved measurably.<sup>75</sup>

*Third*, the fifty states must define and fully fund specific and continuing professional education for teachers to keep them abreast of the latest educational and technological advances. Many current continuing education programs for teachers are often ill defined or misguided. Too often, underpaid teachers are paying for this education out of their own pocket. The nation should again look to England as an example. There, initial professional education focuses on a new teacher's documented weak areas as observed by supervisors during initial teacher training in universities and colleges.<sup>76</sup>

*Fourth*, the fifty states must develop specific curricula within primary and secondary schools. Standard curricula will ensure teachers instruct children in a fashion that builds upon foundations from preceding class work in the previous grade. Even a teacher with the best intentions could develop curricula that repeats material students already know, teaches something students are not ready for, or teaches something students no longer need in a rapidly advancing and ever-changing society. Standard curricula would also help students make a seamless transition when moving from one school to another. This is a major factor in today's increasingly transient society.

*Fifth* and finally, a teacher can only be effective in the classroom if he or she has a cooperative and disciplined group of students. The fifty states must develop an enforceable student code of conduct that teachers can use to remove perpetrators who disturb the peace and sanctity of the classroom.

The Department of Education must walk softly as it attempts to facilitate this set of fifty state standards. It must emphasize standards are not an attempt to control states. Traditional cries of “local control,” “we know what’s best for our children,” and “diversity is our strength” will certainly oppose any national level initiative. However, the Department must highlight that a fifty state set of standards will increase the quality of teaching professionals nationwide. This, in turn, will promote greater educational equity in America’s schools so that no child is left behind.

## **Conclusion**

Quality teachers are the key to meeting President Bush’s goal of “No Child Left Behind.” America faces a current and continuing shortage of qualified teachers. Now is the time for national action. Raising teacher pay to comparable professional levels and providing financial incentives for teacher education (such as scholarships, loan forgiveness, and tax incentives) would attract more teachers. America must significantly bolster its Department of Education budget to make increased teacher pay and the teacher effectiveness initiatives a priority and a reality.

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<sup>1</sup> *Road Map for National Security: Imperative for Change*, The Phase III Report of the U.S. Commission on National Security/21<sup>st</sup> Century, 15 March 2001, xiv.

<sup>2</sup> National Alliance of Business, "Why Does Business Care About Academic Standards", INTERNET, [nab.com/Content/EducationImprovement/Standards/index.htm](http://nab.com/Content/EducationImprovement/Standards/index.htm), 14 March 2001.

<sup>3</sup> Ms Anne C. Lewis, renown education expert and author, briefing to the Industrial College of the Armed Forces, Education Industry Seminar, 2 February 2001, Fort McNair, Washington DC.

<sup>4</sup> *Investing in Teaching*, National Alliance of Business, Washington D.C. 17 January, 2001, 16.

<sup>5</sup> U.S. Department of Education, Digest of Education Statistics, INTERNET, [nces.ed.gov/pubs2001/digest](http://nces.ed.gov/pubs2001/digest), 5 May 2001.

<sup>6</sup> National Center for Education Statistics, INTERNET [nces.ed.gov](http://nces.ed.gov), 27 March 2001.

<sup>7</sup> U.S. Department of Commerce, International Trade Administration, *U.S. Industry and Trade Outlook* 1999, New York, McGraw Hill, 1999.

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<sup>8</sup> *Road Map for National Security: Imperative for Change*, 45.

<sup>10</sup> Bureau of Labor Statistics, Employment Situation News Release, INTERNET, [stats.bls.gov/news.release/empsit.nr0.htm](http://stats.bls.gov/news.release/empsit.nr0.htm), February 2001.

<sup>10</sup> “Firm Approach to Education: Managing US Business in Schools”, *Financial Times* (London, May 29 1998).

<sup>11</sup> Paige, Rod, U.S. Secretary of Education, Remarks before the American Council on Education, Washington, D.C. February 20,2001. INTERNET, [ed.gov/speeches/02-2001/01022.html](http://ed.gov/speeches/02-2001/01022.html), 27 February 2001.

<sup>12</sup> David Thomas, “US Eighth Graders Above International Average,” *US Dept of Education News*, 5 December 2000, INTERNET, [ed.gov.PressReleases/12-2000/120500.html](http://ed.gov.PressReleases/12-2000/120500.html), 21 December 2001.

<sup>13</sup> Gail Russell Chaddock, “U.S. 12<sup>th</sup>-Graders Miss the Mark”, The Christian Science Monitor, 25 February 1998. INTERNET, [csmonitor.com/durable/1998/02/25/us/us.5.html](http://csmonitor.com/durable/1998/02/25/us/us.5.html), 18 May 2001. In this article, Ms Chaddock also highlights that:

US students rarely score well on international tests, but in the past, there have been plausible reasons why. For example, other nations used to educate only their best students in the highest grades, while US high schools took anyone. Such international comparisons unfairly ranked all US students against everyone else's elites. But that is no longer the case. All 21 countries participating in this last phase of the TIMSS study now enroll more than 90 percent of secondary-school age children.

<sup>14</sup> In America today, there are relatively few textbook publishers for primary and secondary schools. By default, this could provide some level of curriculum standardization. However, education authors H. Stevenson and J. Stigler point out that text books don't ensure curricula consistency:

Daunted by the length of most textbooks and knowing that the children's future teachers will likely return to the material, American teachers often omit some topics. Different topics are omitted by different teachers thereby making it impossible for the children's later teachers to know what has been covered at earlier grades—they cannot be sure what their students know and what they don't know.

H. Stevenson and J. Stigler, “The Learning Gap: Why Our Schools Are Failing and What we Can Learn From Japanese and Chinese Education”, Summit Books, New York, New York, 1992, p.140.

<sup>15</sup> “The Nation's Report Card,” *The Wall Street Journal Reports* (March 31,1989): R15. Specifically, the 1990 report highlighted that less than 20 percent of 2,000 11th graders in a congressionally mandated study could write an intelligible note applying for a summer job at a swimming pool. 39.2 percent of 17 year olds could read well enough to understand and explain complicated information and only 4.9 percent could synthesize and learn from such materials. 51.1 percent could correctly perform moderately complex mathematical procedures while only 6.4 percent could perform multi-step problem solving and algebra. In science, 41.4 percent could analyze scientific data, but only 7.5 percent could integrate specialized scientific information.

<sup>16</sup> “Industry Report 2000” *Training Magazine*, (October 2000): 71.

<sup>17</sup> Ibid.

<sup>18</sup> “The Latest Data on Expenditures, Types of Training and More,” *HR FOCUS*, (April 2000): 10.

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<sup>19</sup> Dick Schaaf, "What Workers Really Think About Training" *Training: The Human Side of Business* 35 September 1998: 60.

<sup>20</sup> "Industry Report 2000": 58.

<sup>21</sup> Lynn E. Densford, "Motorola University: The Next 20 Years," Corporate University Review (Jan/Feb 1999). INTERNET, [traininguniversity.com/magazine/jan\\_Feb99/feature1.html](http://traininguniversity.com/magazine/jan_Feb99/feature1.html), 21 February 2001.

<sup>22</sup> Ibid.

<sup>23</sup> Jeanne C. Meister and James L. Morrison, "Corporate Universities: An Interview with Jeanne Meister," (July 2000). INTERNET, [horizon.unc.edu/TS/default.asp?show=article&id=785](http://horizon.unc.edu/TS/default.asp?show=article&id=785), 12 March 2001.

<sup>24</sup> "The Latest Data on Expenditures,": 10.

<sup>25</sup> *Road Map for National Security: Imperative for Change*, 39.

<sup>26</sup> Ibid.

<sup>27</sup> E.D. Hirsch accurately captures this "curricular problem" as follows:

Recently, a district superintendent told me that for twenty years he had mistakenly assumed each of his schools was determining what would be taught to children at each grade level, but was shocked to find that assumption was entirely false; he discovered that no principal in his district could tell him what minimal content each child in each grade was expected to learn. He was not surprised when I told him I had received a letter from a distraught mother of identical twins in which she complained that her children had been placed in different classes in the same school and were learning totally different things.

E.D. Hirsch, Jr., "The Schools We Need: Why We Don't Have Them" Doubleday, New York New York, 1996, 26-27.

<sup>28</sup> National Alliance of Business, "A Workforce in Transition", *Workforce Economics* newsletter, Fall 2000, 11.

<sup>29</sup> The Hart-Rudman Commission especially highlights the need to bolster secondary school curricula across the nation in math and science. It states,

...core secondary school curricula should be heavier in science and mathematics, and should require higher levels of proficiency for all high school students...Given the exigencies of advanced 21<sup>st</sup> century economics, it is not good enough that we produce a sufficient elite corps of science, math and engineering professionals. We must raise levels of math, science and technology literacy throughout our society. Among other things, that means changing enduring perceptions that taking four years of science and math in high school is only for the "brainy" elite. This is a perception that could ultimately cause an economic disaster in this country.

*Road Map for National Security: Imperative for Change*, 45.

<sup>30</sup> Gerald O. Bracey, briefing to the Industrial College of the Armed Forces, Education Industry Seminar, 9 Feb 2001, Fort McNair, Washington DC.

<sup>31</sup> Educational Testing Service, "America's Smallest School: The Family," Princeton, NJ, 1992. In addition, on page 44 of the Hart-Rudman Commission report, it states, "As important, local communities must be empowered and involved more fully in education, for nothing tracks more directly with student performance as parental involvement in their children's education."

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<sup>32</sup> From NBC News Report, NBC Nightly News Broadcast , 6 March 2001.

<sup>33</sup> U.S. Department of Education, Digest of Education Statistics. INTERNET, [nces.ed.gov/pubs2001/digest](http://nces.ed.gov/pubs2001/digest).

<sup>34</sup> National Assessment Governing Board, INTERNET, [nagb.org/cella.html](http://nagb.org/cella.html), 12 March 2001.

<sup>35</sup> Department of Education website, INTERNET, [ed.gov/Technology/cahllenge/grants1.html](http://ed.gov/Technology/cahllenge/grants1.html), 20 April 2001.

<sup>36</sup> Ibid.

<sup>37</sup> President Bush's new education proposals include fewer federal guidelines and less bureaucracy but increase accountability. According to the Bush Administration,

“It is just as clear that federal education policy is not accomplishing its goals despite the investment of more than \$130 billion in the Elementary and Secondary Education Act...In fact, it is often this bewildering array of federal programs, regulations, and paperwork that gets in the way of promising reforms at the state and local levels.”

Department of Education website, INTERNET, [ed.gov/offices/OUS/Budget02/Summary/sum.html](http://ed.gov/offices/OUS/Budget02/Summary/sum.html), 20 April 2001.

<sup>38</sup> National Center for Educational Statistics, INTERNET, [nces.ed.gov](http://nces.ed.gov), 27 March 2001.

<sup>39</sup> “Projections of Education Statistics to 2010”, US Department of Education, INTERNET, [nces.ed.gov/pubs2000/projections/chapter1.html](http://nces.ed.gov/pubs2000/projections/chapter1.html), 16 March 2001.

<sup>40</sup> Lynn Olson, “ Minority Groups to Emerge as a Majority in U.S. Schools,” *Education Week on the Web*, 27 September 2000.

<sup>41</sup> National Center for Educational Statistics, INTERNET, [nces.ed.gov](http://nces.ed.gov), 27 March 2001.

<sup>42</sup> Kate Zernike, “Less Training, More Teachers: New Math for Staffing Classes”, *New York Times*, 24 August, 2000, p. A1.

<sup>43</sup> Boston University is a prime example of a university collaborating with a needy school system. Boston, University took over administration of the failing Chelsea Public School system and is making significant improvements in that school system. The Minuteman School of Applied Arts and Sciences, in Lexington, Massachusetts and the Thomas Jefferson High School in Fairfax Virginia are prime examples of schools that partner with local business to help students find their work niche and ease their transition into colleges/universities or the workplace following graduation.

<sup>44</sup> Department of Education website, INTERNET, [www.ed.gov/offices/OUS/Budget02/Summary/sum.html](http://www.ed.gov/offices/OUS/Budget02/Summary/sum.html), 20 April 2001.

<sup>45</sup> Department of Education website, INTERNET, [ed.gov/offices/OUS/Budget02/Summary/sum.html](http://ed.gov/offices/OUS/Budget02/Summary/sum.html), 20 April 2001.

<sup>46</sup> Michael A. Fletcher and Amy Goldstein, “Money is Stumbling Block for Bush’s Education Plan”, *The Washington Post*, April 22, 2001, A2 and the Department of Education website, INTERNET, [www.ed.gov/offices/OUS/Budget02/Summary/sum.html](http://www.ed.gov/offices/OUS/Budget02/Summary/sum.html), 20 April 2001.

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<sup>47</sup> National Assessment Governing Board, “The National Assessment of Educational Progress: Design 2000-2010”, INTERNET, [nagb.org/naep/design2000/index.html](http://nagb.org/naep/design2000/index.html), 12 March 2001.

<sup>48</sup> P.L. Donahue, K.E. Voelkl, J.R. Campbell, and J. Mazzeo, NAEP 1998 Reading Report Card for the Nation , INTERNET, [nces.ed.gov/nationsreportcard](http://nces.ed.gov/nationsreportcard). 7 May 2001. Forty-three states participated in the 1998 reading assessment at grade 4 and 40 states participated in the reading assessment at grade 8.

<sup>49</sup> E.D. Hirsch Jr. in his book “The Schools We Need: Why We Don’t Have Them”, *Doubleday*, New York New York, 1996, 237-238, captures this feeling perfectly;

The strongest resistance to commonality in schooling may come from a widespread fear of uniformity--the last bastion of misguided Romanticism. It is said that common elements in the curriculum would destroy our American essence, which is diversity. There is no evidence whatever that this fear of uniformity, which is widespread and often expressed, has any real-world foundation, or that a moiety of commonality in the school curriculum will turn everyone into interchangeable automatons. To the extent that this antisameness has any concrete implication for the curriculum, it would seem to be the current laissez-faire idea that if all schools and teachers do their own thing, then the invisible hand of nature will cause our children to be educated effectively, and thus ensure their individuality and diversity. The foundation for this curricular confidence (which has in fact resulted in huge knowledge gaps, boring repetitions and glaring inequalities) would seem to be a Romantic faith in the watchful beneficence of nature...It is an expression of the same optimistic naturalism which supposes that the pace and quality of each child’s scholarly attainments are determined naturally, and will follow an innate course of development which should not be interfered with by external impositions of drills and hard work....Bringing our children closer to universal competence is important. But an equally important contribution of the truly common school would be the strengthening of universal communicability and sense of community within the public sphere. In the long run, that could be the common school’s most important contribution to preserving the fragile fabric of our democracy.

<sup>50</sup> As an example, during the 1970s fuel shortages, the federal government encouraged states to voluntarily comply with a federally suggested 55 Mph limit. Interestingly the national government provided significant funding to each state to support the interstate highway system (a national security resource). They used this leverage to encourage state compliance. In other words, no 55 Mph limit, no federal highway money!

<sup>51</sup> Briefing from Ministry of Education, Baden-Wuerttemberg, to the Industrial College of the Armed Forces, Education Industry Seminar, Ulm, Germany, 15 May 2001.

<sup>52</sup> David DeSchryver, “Private Scholarship Programs,” *Center for Education Reform*, August 1999, INTERNET, [edreform.com](http://edreform.com), 18 January 2001.

<sup>53</sup> Kenneth Cooper, “Appeals Court Rejects Vouchers in Cleveland,” *Washington Post*, 12 December 2000, A03.

<sup>54</sup> “Educational Statistics at a Glance,” *Center for Education Reform*, INTERNET, [edreform.com](http://edreform.com), 31 January 2001.

<sup>55</sup> Mark Walsh, “Voucher Initiatives Defeated in California, Michigan,” *Education Week*, 15 November 2000, INTERNET, [edweek.org](http://edweek.org), 6 February 2001.

<sup>56</sup> Kerry White, “NRC Calls for Voucher Experiment,” *Education Week*, 15 September 2000, INTERNET, [edweek.org](http://edweek.org), 6 February 2001.

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<sup>57</sup> “Overview of Charter Schools,” INTERNET, [uscharterschools.org](http://uscharterschools.org), 18 January 2001.

<sup>58</sup> Researchers admit that the exact numbers of children home schooled are elusive based on varied state reporting requirements and home schooler’s innate tendency to resist surveys based on bureaucratic and regulatory concerns that have driven many to alternative education systems. These numbers are the best-guess average of the considerable research included below.

Brian C. Anderson, “An A for Home Schooling,” *City Journal* 10:3 (2000); Jane Duffey, “Home Schooling: A Controversial Alternative,” *Principal* 77:5 (1998): 23-24; Paul T. Hill, “How Home Schooling Will Change Public Education,” *Hoover Digest* 3 (2000); Carolyn Kleiner, “Home School Comes Of Age: As The Movement Matures It Expands To Include A Diverse Array Of Families,” *U.S. News and World Report* 129:15 (2000): 52; Andrew S. Latham, “Home Schooling,” *Educational Leadership* 55:8 (1998): 85; Patricia M. Lines, “Home schooling Comes of Age,” *Public Interest* 140 (2000): 74; Amanda Paulson, “Where the School is – Home,” *Christian Science Monitor* 92:122 (2000): 18-19; Lesley A. Taylor, “Home In School: Insights On Education Through The Lens Of Home Schoolers,” *Theory into Practice* 36 (1997): 110-111; Theodore C. Wagenaar, “What Characterizes Home Schoolers? A National Study,” *Education* 117 (1997): 440.

<sup>59</sup> Rebecca Winters, “From Home to Harvard,” *Time* 156:11 (2000): 55; Anderson, IBID; Butler, IBID: 47-48; Duffey, IBID: 24-25; Paulson, IBID: 21.

<sup>60</sup> Rebecca Winters, “From Home to Harvard,” *Time* 156:11 (2000): 55; Anderson, IBID; Duffey, IBID: 24-25; Paulson, IBID: 21.

<sup>61</sup> Associated Press release, “18 California School Districts Sued; Shoddy Classrooms, Textbook Shortages, Teacher Quality Cited”, *Washington Post*, 13 December 2000, p. A-13, PROQUEST, 16 February 2001.

<sup>62</sup> *Investing in Teaching*, 16.

<sup>63</sup> National Center for Educational Statistics, INTERNET, [nces.ed.gov](http://nces.ed.gov), 27 March 2001.

<sup>64</sup> Kate Zernike, “Less Training, More Teachers: New Math for Staffing Classes”, *New York Times*, 24 August, 2000, A1

<sup>65</sup> Janet Okonen, “Schools Importing Teachers to Fill Gaps”, *Cleveland Plain Dealer*, 12 March 2001, INTERNET, [cleveland.com/news/index.ssf?/news/pd/c12visa.html](http://cleveland.com/news/index.ssf?/news/pd/c12visa.html), 13 March 2001.

<sup>66</sup> Justin Blum, “D.C Seeks Different Sort of Teacher”, *Washington Post*, 23 February 2001, B01.

<sup>67</sup> “Profile of Troops to Teachers”, Department of Defense, INTERNET, [voled.doded.mil](http://voled.doded.mil)., 23 March 2001.

<sup>68</sup> Briefing by Dr Dale Fulton to Industrial College of the Armed Forces during visit to Montgomery County Public Schools , 2 March 2001, Washington D.C.

<sup>69</sup> Kenneth J. Cooper, “Federal Role is Urged in Raising Teacher Pay”, *Washington Post*, 14 August 2000, A19.

<sup>70</sup> The salary gap will likely get worse in the future. The National Alliance of Business foresees a continuing national shortage of properly educated workers due to technology advances and impending retirements of an increasingly older workforce. As the demand for educated personnel goes up, higher salaries in jobs outside of education will compete for the attention of would-be teachers.  
National Alliance of Business, “A Workforce in Transition”, *Workforce Economics* newsletter, Fall 2000, 3-7.

<sup>71</sup> Cooper, A19.

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<sup>72</sup> *Road Map for National Security: Imperative for Change*, 41.

<sup>73</sup> Cooper, A19.

<sup>74</sup> Business Coalition for Excellence in Education, “Principles for K-12 Education Legislation”, 7. Available from Business Coalition for Excellence in Education, 1201 New York Ave., N.W., Suite 700, Washington D.C.

<sup>75</sup> Briefing from the Teacher Training Agency to Industrial College of the Armed Forces, Education Industry Seminar , 9 May 2001, London England.

<sup>76</sup> Ibid.